

What is Claimed:

1. A microscope stage assembly, comprising:
  - a stage;
  - first engagement means for a microscope stage drive mechanism at a first location
- 5 on said stage; and,
  - second engagement means for said microscope stage drive mechanism at a second location on said stage.
2. The microscope stage assembly recited in Claim 1 wherein said first location further comprises a rack operatively arranged to engage the microscope stage drive mechanism.
- 10 3. The microscope stage assembly recited in Claim 1 wherein said first location further comprising a belt and pulley operatively arranged to engage the microscope stage drive mechanism.
4. The microscope stage assembly recited in Claim 1 wherein said first engagement means further comprising a set screw to detachably secure said stage drive mechanism to said stage.
- 15 5. The microscope stage assembly recited in Claim 1 wherein said first engagement means further comprising a spring-loaded ball bearing to detachably secure said stage drive mechanism to said stage.
6. The microscope stage assembly recited in Claim 1 wherein said second location further comprises a rack operatively arranged to engage the microscope stage drive mechanism.
- 20 7. The microscope stage assembly recited in Claim 1 wherein said second location further comprising a belt and pulley operatively arranged to engage the microscope stage drive mechanism.
8. The microscope stage assembly recited in Claim 1 wherein said second engagement means further comprising a set screw to detachably secure said stage drive mechanism to said stage.
- 25 9. The microscope stage assembly recited in Claim 1 wherein said second engagement means further comprising a spring-loaded ball bearing to detachably secure said stage drive mechanism to said stage.
10. The microscope stage assembly recited in Claim 1 in combination with a microscope.

11. The microscope stage assembly recited in Claim 1 in combination with a microscope stage drive mechanism.

12. A microscope stage drive mechanism, comprising:  
an inner drive shaft having a plunger head;  
5 an outer drive shaft, arranged coaxially with respect to said inner drive shaft, said outer drive shaft having a pinion; and,  
a means to detachably secure said microscope stage drive mechanism to a microscope stage.

13. The drive mechanism recited in Claim 12 wherein said means to detachably secure the drive mechanism further comprises a collar having a groove, wherein said groove is operatively arranged for receipt of an engagement means.

14. The drive mechanism recited in Claim 12 in combination with a microscope.

15. The drive mechanism recited in Claim 12 in combination with a microscope stage assembly.

15 16. An interchangeable microscope stage drive assembly, comprising:  
a microscope stage; and,  
a drive mechanism detachably securable to said microscope stage at more than one location of said stage.

17. The assembly recited in Claim 16 further comprising a set screw to detachably secure 20 said stage drive mechanism to said stage.

18. The assembly recited in Claim 16 further comprising a spring-loaded ball bearing to detachably secure said stage drive mechanism to said stage.

19. The assembly recited in Claim 16 further comprising a belt and pulley operatively arranged to effect lateral movement of a slide holder.

25 20. The assembly recited in Claim 16 further comprising a rack and pinion operatively arranged to effect lateral movement of said slider holder.

21. The assembly recited in Claim 16 further comprising a belt and pulley operatively arranged to effect forward and backward movement of said stage.

22. The assembly recited in Claim 16 further comprising a rack and pinion operatively 30 arranged to effect forward and backward movement of said stage.

23. The assembly recited in Claim 16 in combination with a microscope.
24. The assembly recited in Claim 16, wherein said drive mechanism comprises:
  - an inner drive shaft having a plunger head; and,
  - an outer drive shaft, arranged coaxially with respect to said inner drive shaft, said
- 5 outer drive shaft having a pinion.
25. The assembly recited in Claim 24 wherein said plunger head comprises a frustoconical surface.
26. The assembly recited in Claim 24 wherein said plunger head comprises a cylindrical surface.
- 10 27. The assembly recited in Claim 24 wherein said plunger head comprises a curved surface.
28. The drive mechanism recited in Claim 24, wherein said plunger head comprises a friction clutch having the ability to slip.
29. The drive mechanism recited in Claim 24, wherein said plunger head is spring biased to provide an engaging force.
- 15 30. The drive mechanism recited in Claim 24, wherein said plunger head contacts a drive pulley, said pulley mounted for rotation in said microscope stage.
31. The drive mechanism recited in Claim 24, further comprising a drive member transferring a driving force to said stage.
32. The drive mechanism recited in Claim 24, in which said outer drive shaft pinion is a gear.
- 20 33. The drive mechanism recited in Claim 24 in combination with a microscope.